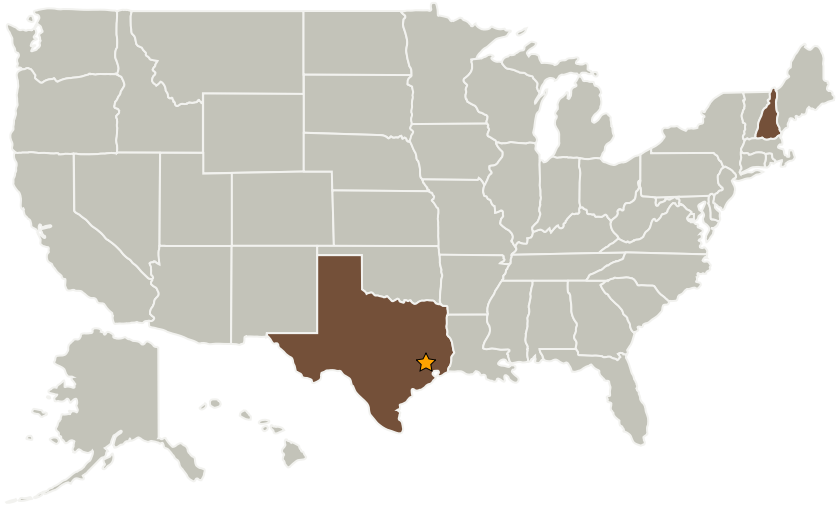
Compact, Efficient, and Reliable Ventilation Fan for EVA Suits, Phase I

Completed Technology Project (2009 - 2009)

Project Introduction

Advanced EVA suits for space exploration will need a portable life support system (PLSS) that is compact, lightweight, and highly reliable. A key component is a blower that circulates air through the space suit ventilation loop. We propose to develop an innovative air blower that can meet the challenging requirements for circulating ventilation air in an EVA suit using a reliable system that consumes little power. In Phase I we will prove the feasibility of our approach by producing a conceptual design for the blower and building and demonstrating a proof-of-concept blower. In Phase II we will optimize the blower and motor designs to achieve small size and maximum efficiency while meeting requirements and constraints for operation in exploration space suits. We will demonstrate lifetime and reliability of critical components and deliver a prototype blower that can be used in system tests of advanced portable life support systems.

Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Johnson Space Center(JSC)	Lead Organization	NASA Center	Houston, Texas
Creare LLC	Supporting Organization	Industry	Hanover, New Hampshire

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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Johnson Space Center (JSC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Primary U.S. Work Locations	
New Hampshire	Texas

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - TX06.2 Extravehicular Activity Systems
    - TX06.2.2 Portable Life Support System